

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A method for controlling spatial transport formats in an access point of a communication system ~~for scheduling spatial transport formats, that utilizes frequency division duplexing (FDD)~~, said access point transmitting signals of data streams using a set of one or more antennas to a plurality of mobile terminals, said method comprising:

determining a set of spatial transport formats comprising for each format at least one vector of complex transmission weights and delays, wherein each vector is associated with the transmission of one of a determined signal of interest or one of a number of multiplexed co-channel signals, and each vector is associated with a transmission power value of its associated signal, and wherein each vector element is associated with one antenna,

selecting a subset of said transport formats as an active set for data transmission to at least one of said mobile terminals, and

signaling the active set of transport formats to the at least one mobile terminal, wherein each transport format includes at least one vector of complex transmission weights and delays.

2. (Previously Presented) The method according to claim 1, wherein the norm of a vector represents the transmission power of the associated signal.

3. (Previously Presented) The method according to claim 1, wherein a scaling factor of a vector represents the transmission power of the associated signal.

4. (Previously Presented) The method according to claim 1, wherein the signaling is performed over a common control channel that is decodable by all users within the coverage area of the access point.

5. (Previously Presented) The method according to claim 1, wherein the signaling is performed over a dedicated control channel which is transmitted over a part of the coverage area of the access point to a specific user.

6. (Previously Presented) The method according to claim 1, wherein the mobile terminals or groups of mobile terminals are assigned to different sets of transport formats.

7. (Previously Presented) The method according to claim 1, further comprising the step of advising the mobile terminals about a metric to be applied on selected downlink channel properties to derive a quality indicator for one or more of the transport formats.

8. (Previously Presented) The method according to claim 7, further comprising the step of advising the mobile terminals to provide quality indicators for the best or a set of best transport formats with respect to the applied metric.

9. (Previously Presented) The method according to claim 8, further comprising the step of advising the mobile terminals to provide quality indicators for the worst or a set of worst transport formats with respect to the applied metric.

10. (Previously Presented) The method according to claim 7, wherein the applied metric is a signal-to-noise and interference ratio.

11. (Previously Presented) The method according to claim 7, wherein the applied metric is an estimate of the supported bit rate in terms of a channel encoding and modulation scheme.

12. (Previously Presented) The method according to claim 1, wherein the number of weights for each antenna is the same.

13. (Previously Presented) The method according to claim 12, wherein only one complex weight and delay is assigned to each specific antenna.

14. (Previously Presented) The method according to claim 1, wherein one fixed delay value is assigned to all the antennas.

15. (Previously Presented) The method according to claim 14, wherein the fixed delay value is not included in the signaling of the active set of transport formats.

16. (Previously Presented) The method according to claim 1, wherein the access point further performs the steps of:

adjusting transport formats of the active set by adapting the parameters of their complex transmission weights and/or their transmission power by evaluating collected channel management information and

signaling an indication of the adjusted transport formats to the at least one mobile terminal.

17. (Previously Presented) The method according to claim 16, wherein the collected channel management information includes mobile-terminal-determined quality indicators of the downlink channels associated with the transport formats.

18. (Previously Presented) The method according to claim 16 wherein the collected channel management information includes interference management requirements and/or indications of downlink channel statistics.

19. (Previously Presented) The method according to claim 16, wherein the selecting and adjusting of said transport formats optimizes the aggregate data throughput subject to quality and fairness requirements.

20. (Previously Presented) The method according to claim 1, wherein the access point further performs the steps of:

evaluating a plurality of quality indicators received from various mobile terminals and determining the applicable data rates for each of the data streams associated to with the transport formats in the active set,

determining from said evaluation, a scheduling scheme for scheduling data streams to said mobile terminals, and

assigning an applicable data rate to each of said scheduled data streams.

21. (Previously Presented) The method according to claim 20, wherein said scheduling scheme provides a fair access to the data streams.

22. (Previously Presented) The method according to claim 20, wherein the said scheduling scheme provides cyclic access to the data streams.

23. (Previously Presented) The method according to claim 20, wherein the scheduling scheme only provides access to the data streams if the reported quality indicator is sufficiently good.

24. (Currently Amended) A method in a mobile terminal of a communication system that utilizes frequency division duplexing (FDD), said mobile terminal comprising having at least one antenna for receiving data streams from a multi-antenna access point, said method comprising:

receiving from the access point, an indication of applicable spatial transport formats, each spatial transport format including at least one vector of complex transmission weights and delays,

estimating quality indicators for the received transport formats taking the received weights and channel and interference conditions into account, and

transmitting a quality report for one or several of the received transport formats, including a quality indicator for each of said formats.

25. (Previously Presented) The method according to claim 24, wherein a mobile terminal determines a quality indicator from a signal-to noise and interference ratio when applying the received transport formats.